APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,950	04/16/2004	Stephen K. Pinto	17146-004001	1603

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EXAMINER
BHARADWAJ, KALPANA

ART UNIT	PAPER NUMBER
2109	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :12/19/2006, 07/17/2006 & 02/28/2005.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

2.   Claim 10 recites the limitation "the variable" in line 2 of the claim. There is

insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Fox (USPN 5,491,629, referred to as **Fox**).

As to **claims 1 and 6**, Fox discloses a machine-based method comprising:

receiving historical (**Fox,** C 18 L 50: historical weather data) multi-dimensional data

(**Fox,** C 13 L 13-20: weather data 201) representing multiple source variables (**Fox,** C

14 L 60: "k" variables; also see C 06 L 22: weather and other variables; **EN**: climatology

in general uses multiple source elements like temperature, precipitation etc. see C 05 L

16) to be used as an input to a predictive model (**Fox,** Abstract: predictive model) of a

commercial system (**Fox,** Abstract: Executive Information System (EIS); **EN:** EIS is a representative of a commercial system) , applying transformations to the source variables (**Fox,** C 13 L 18: transformations of those variables), and applying transformations to the data that are selected based on the strength of measurement represented by a variable (**Fox,** C 05 L 55: weather impact measurement through historical correlation; **EN:** correlation is to establish a relation between variables, and measurement through correlation would be based on the strength of measurement represented by a variable).

Fox does not teach variables selected to increase predictive power. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that since the goal of Fox's invention is to improve productivity (**Fox,** C 04 L 48: improve productivity) by weather forecasting, there would be increased predictive power to support it.

As to the additional limitation in **Claim 6,** Fox discloses adjusting unstable values of the variables (**Fox,** C 14 L 64: regression is the statistical technique employed; **EN:** regression is a statistical technique that deals with adjustment and counter-adjustment) to reduce inaccurate (**Fox,** C15 L 02: more accurately define the observed changes) associations (**Fox,** C 14 L 65: quantify these relationships; **EN:** relationships are associations between variables).

Fox does not teach predictor variables and target variables. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that Fox's system is designed to solve problems related to source and

target merchandise (**Fox**, C 02 L 19: source, acquire, and achieve specific target

merchandise) using prediction, and therefore, it would be using predictor and target

variables.

As to **claim 2**, Fox discloses the method of claim 1 in which the strength of

measurement (**Fox**, C 06 L 60: measuring the impact of past weather) comprises at

least one of nominal, ordinal, and interval (**Fox**, C 03 L 64: time intervals in specific

regions; **EN**: measuring time intervals is 'interval measurement').

As to **claim 3**, Fox discloses the method of claim 1 in which the strength of a

measurement (**Fox**, 05 L 55: weather impact measurement) is represented in stored

metadata (**Fig. 2**: See blocks 136, 116 and 201; **EN**: metadata is data about data)

associated with the data.

As to **claim 4**, Fox discloses the method of claim 1 also including displaying to a

user a representation of a response function (**Fox**, C07 L 63: displays the impact of any

internal (industry) and external factors; **EN**: Response functions express a cause and

effect relationship; A display to show the impact of factors would represent a response

function of variables associated with factors being considered).

Fox does not teach specifically, response of a target variable against

untransformed, transformed, and target variables associated with the data. However, it

would have been obvious to one with ordinary skills in the art at the time the invention

was made to see that since Fox's system has a database initializer that transforms the

datasets (**Fox,** C 11 L 42: The database initializer 702 transforms the datasets), there

would be a mapping of transformed, untransformed and target variables, which is a

response function.

As to **claim 5,** Fox discloses the method of claim 1 also including persistently

storing (**Fox,** C 02 L 50: mainframe databases for subsequent analysis; **EN:** persistent

storage is achieved by any non-volatile storage like a database) both the source

variables and related transformed versions of the source variables (**Fox,** C 12 L 59:

variable database; **EN:** a variable database encompasses all kinds of variables

including source and transformed).

As to **claim 8,** Fox discloses a machine-based method comprising

in connection with a project in which a user generates a predictive model (**Fox,**

Abstract: predictive model) based on historical data about a system being modeled

(**Fox,** C 18 L 50: historical weather data).

Fox does not teach automatically imputing missing values for continuous

variables associated with the data. However, it would have been obvious to one with

ordinary skills in the art at the time the invention was made that Fox's invention uses

regression (**Fox,** C 14 L 64: regression is the statistical technique employed), and to

employ regression one would use a method like curve-fitting where missing values are

imputed, because this would reduce distortion.

As to **claim 9**, Fox teaches the method of claim 8 in which the user is enabled to invoke features that displays information as a part of a user interface (**Fox,** C 05 L 62: a graphical user interface). Fox fails to teach the automatic imputing of variables for which values are missing. See Claim 8 for rationale for obviousness.

As to **claim 10**, Fox does not teach the method of claim 9 in which the automatic imputing is invoked based on the variable or type of variable.

Reasoning for why automatic imputing is obvious has been discussed in claims 8 and 9. Further, Fox discloses variables (**Fox,** C12 L 51: regression structure file; C12 L 56: regression variables). It would have been obvious to one with ordinary skills in the art at the time the invention was made to see that the imputing would be based on the variable or the type of variable because in order to substitute for missing values they must be of the same type and a system must be aware of that.

As to **claim 11**, Fox teaches the method of claim 9 in which the variables may be used in the model or (**Fox,** C 12 L 59: variable data base normal values map into weather impact model) may be transformed (**Fox,** C 11 L 42: transforms the datasets) for use in the model.

However, Fox does not teach variables for which missing values are imputed. See claims 8 and 9 for obviousness discussion and rationale.

4.   Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Fox as

applied to claim 6 above, and further in view of Lapointe, (USPN 6556977, referred to

as **Lapointe**).

        As to **claim 7**, Fox does not teach the method of claim 6 in which the adjustment

of the unstable values comprises Bayesian renormalization.

        However, Lapointe teaches Bayesian decision theory (**Lapointe,** C 02 L 14:

Bayesian decision theory). It would have been obvious to one with ordinary skills in the

art at the time the invention was made to combine the two references because they

both relate to decision support functions. Further, by using Bayesian renormalization for

adjusting the unstable values, it would improve the accuracy of the prediction values,

considering the large quantities of variables and complex interactions between variables

involved in weather prediction. Renormalization is an essential step in the estimation

process.

Examinations Considerations

5.   Examiner's Notes (**EN**) are provided with the cited references to prior art to assist

the applicant to better understand the nature of the prior art, application of such prior art

and, as appropriate, to further indicate other prior art that maybe applied in other office

actions. Such comments are entirely consistent with the intent and spirit of compact

prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior

art but a link to prior art that one of ordinary skill in the art would find inherently

appropriate.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure –

   a.   Goodkovsky, USPN 680735, cited for prediction modeling and metadata.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Bharadwaj Kalpana whose telephone number is (571)

270-1641. The examiner can normally be reached on Monday-Friday 7:30am 5:00 pm

EST.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wu Xiao can be reached on (571) 272-7761. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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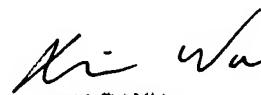
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